

2.9

Rational Expressions (Mult. & Divide)

Name _____ Date _____ Period _____

Simplify each rational expression. Hint: FACTOR!!

1. $\frac{8x^3 - 4x^2 - 2x}{2x}$

2. $\frac{3x^3 + 4x^2 + 9x}{x}$

3. $\frac{x^2 - 4x - 5}{x + 1}$

4. $\frac{6x^2 - 47x - 8}{x - 8}$

5. $\frac{2x + 7}{4x^2 - 49}$

6. $\frac{x^2 + 16x + 63}{x^2 + 3x - 54}$

7. $\frac{2x^2 - 13x - 7}{2x^2 + 21x + 10}$

8. $\frac{3x^2 + 25x - 18}{x^2 + 10x + 9}$

9. $\frac{x + 2}{x^3 + 8}$

10. $\frac{x^3 - 1}{x - 1}$

11. $\frac{x^2 - 16}{x^3 + 64}$

12. $\frac{4x^2 - 2x + 1}{8x^3 + 1}$

Perform the indicated operation.

$$13. \quad \frac{8x^2}{9y} \cdot \frac{3y^2}{2x^5}$$

$$14. \quad \frac{-4x^3}{y^4} \div \frac{-2}{x^2y^4}$$

$$15. \quad \frac{6y^2}{5x^2} \div \frac{3y^2}{4x^6}$$

$$16. \quad \frac{x+5}{x-6} \cdot \frac{2x-12}{x^2-25}$$

$$17. \quad \frac{x^2+5x-14}{3x^3-6x^2} \cdot \frac{2x^2+6x}{x^2+10x+21}$$

$$18. \quad \frac{x^2-2x-24}{4x^2+13x-12} \cdot \frac{8x-6}{x^2-6x}$$

$$19. \quad \frac{2x^2+19x-10}{x^2+x-12} \cdot \frac{x^2-16}{x^2-100}$$

$$20. \frac{x^2+x-6}{x^2+5x+4} \cdot \frac{3x^2+14x+8}{2x^2+7x+3}$$

$$21. \frac{x+4}{x^2-36} \div \frac{4x^2+16x}{x^2-4x-12}$$

Simplify

$$22. \frac{5x^2+5x}{x-4} \div \frac{x^2-4x-5}{x^3-4x^2}$$

$$23. \frac{x^2+3x+2}{3x-18} \div \frac{x^2-1}{x^2-x-30}$$

$$24. \frac{x^3-64}{x^3+64} \div \frac{x^2-16}{x^2-4x+16}$$

$$25. \frac{2x^2+11x-21}{x^3+2x^2+4x} \cdot \frac{x^3-8}{x^2+5x-14}$$

$$26. \frac{2x^2+3x}{x^2-16} \cdot \frac{25x^2-9}{4x^2+12x+9} \div \frac{25x+15}{2x^2+11x+12}$$

$$27. \frac{15x^2+5x-50}{32x^2-18} \div \frac{x^2-5x-14}{4x^2+9x-9} \cdot \frac{6x-42}{3x^2+4x-15}$$

Perform the following operations. No calculators

$$28. \frac{5}{9} + \frac{10}{9}$$

$$29. \frac{9}{4} + \frac{5}{6}$$

$$30. \frac{3}{8} - \frac{11}{10}$$